

Apache Geronimo 3.0: Introduction

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Agenda



- Overview
- New Features
 - ▶ Java EE 6
 - ▶ OSGi EEG
 - ▶ Kernel Restructure
- Administration
- Closing

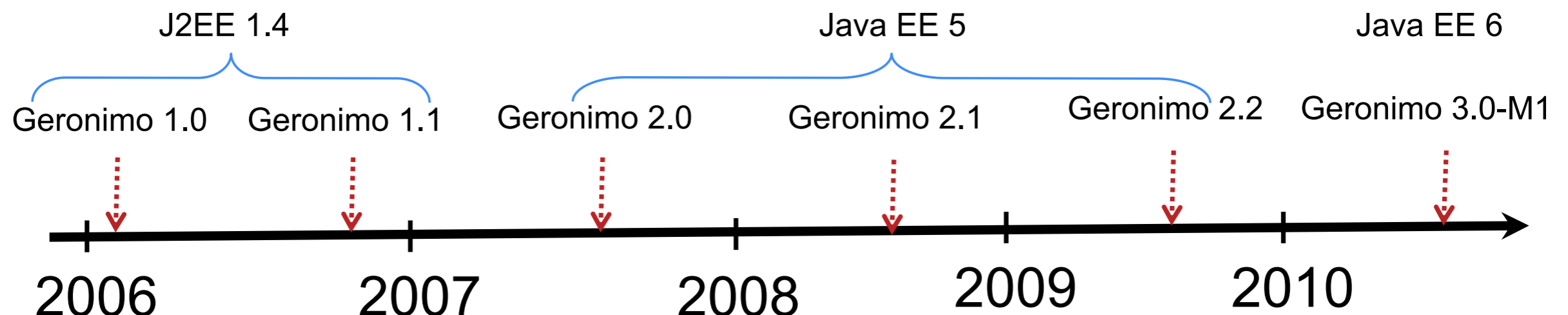
Overview



- ASF project started in 2003
- Mission:

Create an Open Source application server from Best-of-Breed Open Source components

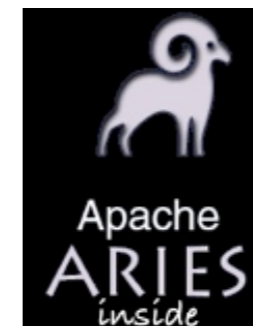
- Release history:



Apache Geronimo



CXF



Karaf

wink



Tomcat

jetty://



Derby

Bean Validation

axis

OpenWebBeans

Apache Geronimo



New in 3.0



- Java EE 6
- OSGi EEG
- Kernel Restructure

Java EE 6



- Ease of development
- Profiles
- New features

Ease of Development



- Context and Dependency Injection (aka Web Beans)
- Servlet Annotations (@WebServlet, @WebFilter, ...)
- EJBs in WAR files
- Portable JNDI lookups
- Portable DataSource definitions

EE 6 Profiles

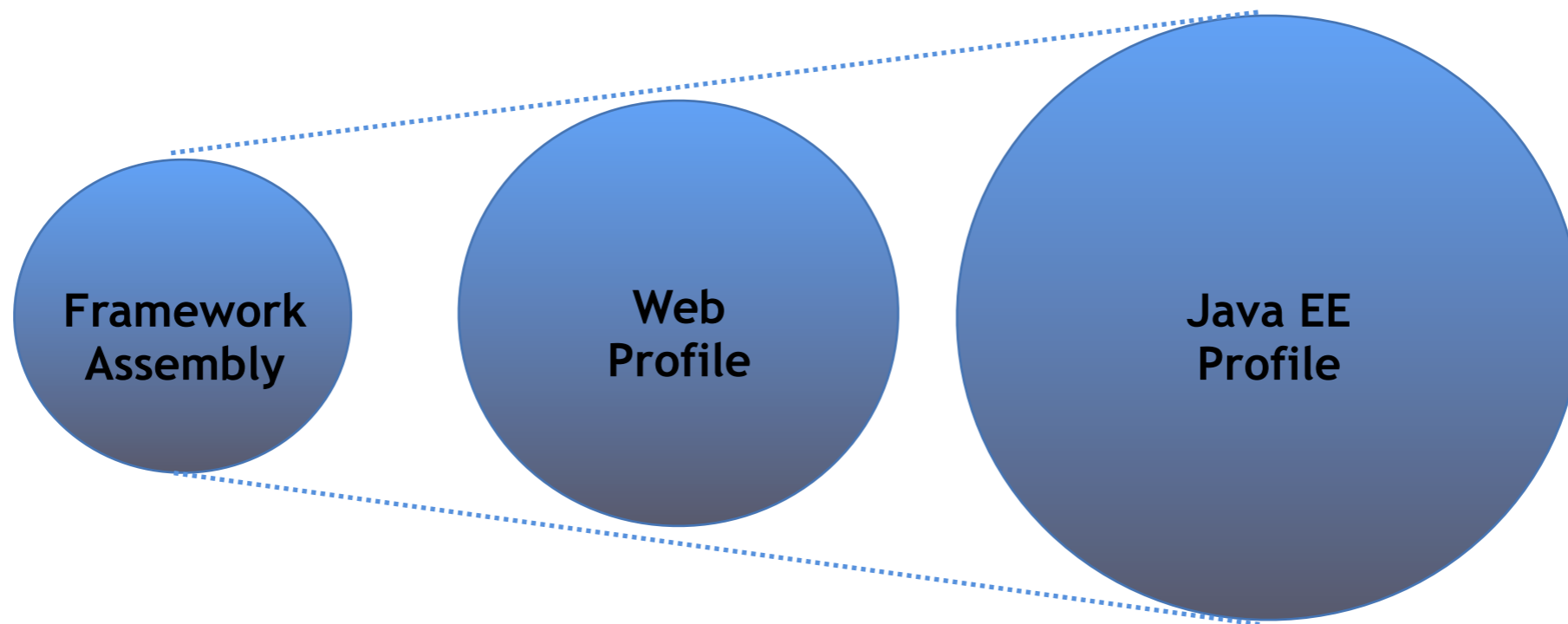


- Full EE 6 Profile
- Web Profile
 - ▶ Subset of full profile:
 - Servlet, JSP/JSTL, JSF/Managed Beans, EJB-lite, JPA, JTA, Bean Validation, CDI
- Geronimo will continue to provide custom assembly feature

Custom Assemblies



- Support for custom assemblies still supported
- “Profile” is a pre-configured assembly



Java EE 6 Features



- Servlet 3.0
 - ▶ Standardized async support
 - ▶ Annotations (e.g. `@WebServlet`, `@WebFilter`, ...)
 - ▶ web.xml fragments
 - ▶ Pluggability
- JSF
 - ▶ Facelets, AJAX, Skins, Annotations, Widget library, etc
- JAX-RS
 - ▶ REST Annotations (`@Path`, `@GET`, `@POST`, etc...)



APACHE
GERONIMO

Java EE 6 Features

- EJB 3.1
 - ▶ EJBs in WAR files
 - ▶ Singleton Beans
 - ▶ No interface local Session beans
 - ▶ Async / Sync invocation
 - ▶ Timers
 - ▶ Standalone EJB containers

Java EE 6 Features



- Bean Validation
 - ▶ Framework for validation of Bean data
 - ▶ Applies to multiple technologies:
 - JSF, JPA, JCA,
 - ▶ Annotations: Pattern, Min/Max, NotNull...
- CDI
 - ▶ Simplifies JSF and EJB programming models
 - ▶ Enterprise beans managed by JSF
 - ▶ Simplifies realization of transactional behavior in the web tier

Java EE 6 Features



- Bean Validation
 - ▶ Framework for validation of Bean data
 - ▶ Applies to multiple technologies:
 - JSF, JPA, JCA,
 - ▶ Annotations: Pattern, Min/Max, NotNull...
- JPA 2.0
 - ▶ Enhanced Mapping
 - ▶ Standardized query hints, locking, caching plugin
 - ▶ Criteria-based query API for dynamic queries

Java EE 6 Features



- JASPIC - Java Authentication SPI for Containers
 - ▶ Pluggable authentication providers
 - ▶ Simplifies implementation/integration of authentication technology into EE container environment

OSGi EEG

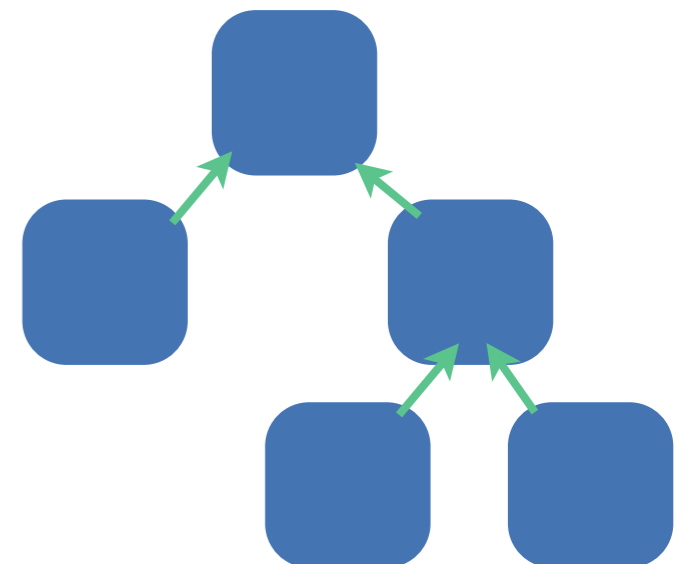


- Geronimo includes support for an OSGi enterprise applications
- Multiple Java EE technologies exposed as OSGi Services
- Apache Aries programming model:
 - ▶ Blueprint Container
 - Dependency Injection framework for OSGi
 - ▶ Applications: WAB and EBA
 - ▶ JPA service
 - ▶ JTA
 - ▶ JNDI Services
 - ▶ JMX

Geronimo Plugins



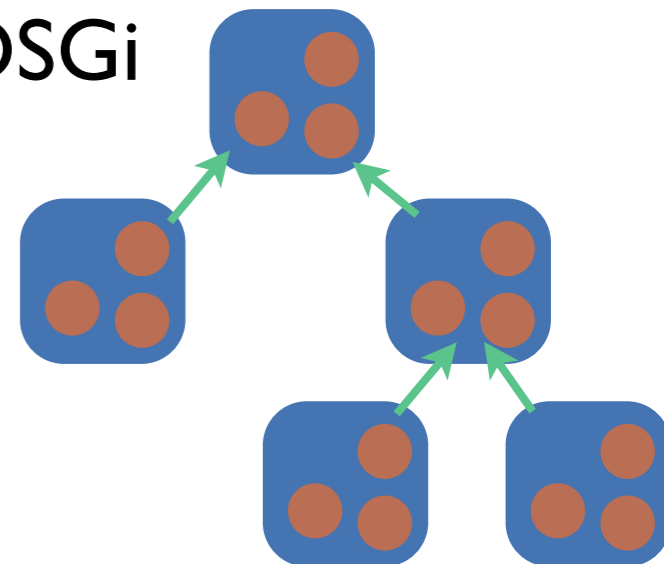
- Plugins are bundles with additional meta-data
- Define dependencies on bundles and other plugins
- Plugin installation installs all dependencies
- Dependencies form a DAG, determining:
 - ▶ startup order, service visibility



Geronimo GBeans



- GBeans are a Geronimo-specific service model that support JSR-77 (J2EE Management)
- Attributes, single/multivalued service references
- References supported within and between Plugins
- OSGi bundles used for classloading, but GBeans are managed by Geronimo kernel
- Easy to expose GBeans as OSGi services and OSGi services can be exposed as GBeans



Some pain points



- Plugins
 - ▶ DAG is useful for restricting service visibility, but otherwise difficult to manage
 - ▶ Plugin lifecycle conflicts with bundle lifecycle
- GBeans
 - ▶ Overlapping capabilities with blueprint
 - ▶ Difficult to generate xml for dynamically generated GBeans
 - ▶ JSR-77 support does not meld well as control points for framework component
 - ▶ Requires that framework classes be exposed to applications

Being considered...

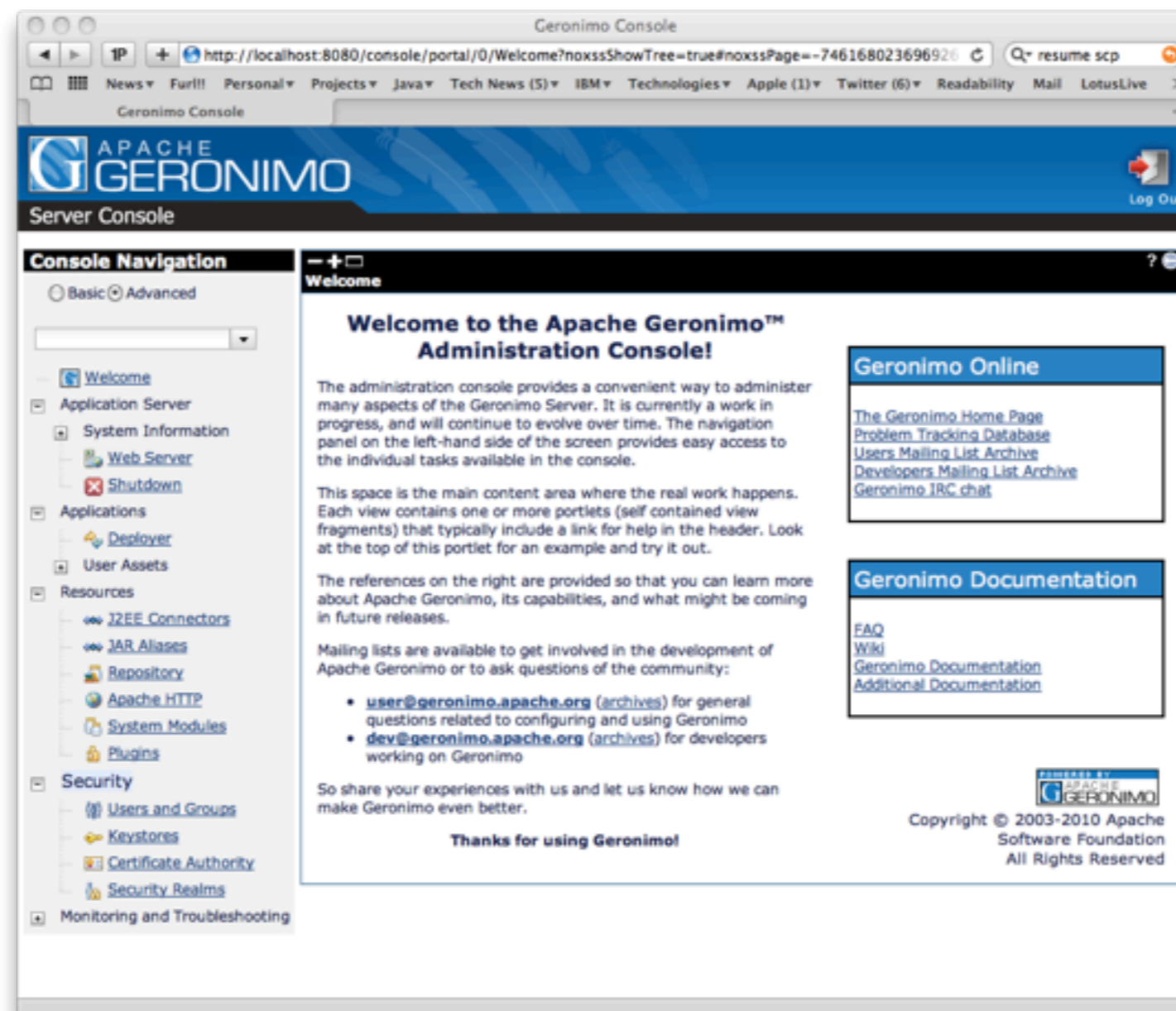


- Plugins
 - ▶ Use karaf features as dependency mechanism
 - ▶ Service visibility constraints replaced by OSGi subsystems
- GBeans
 - ▶ Replace framework GBeans with OSGi declarative services
 - ▶ MBean support with management specific support

Using Geronimo



- Full-featured administrative console



Develop/Deploy



- Geronimo Eclipse Plugin
 - ▶ Java EE 6 development
 - ▶ OSGi plugin available for development of Aries applications
- Deployment
 - ▶ Eclipse
 - ▶ deploy command
 - ▶ hot-deploy directory
 - ▶ Admin console

Current status



- Upcoming service releases:
 - ▶ 2.1.7 and 2.2.1
- Geronimo 3.0-M2 nearing completion
 - ▶ Pass Web Profile TCK
- Geronimo 3.0
 - ▶ Expected early 2011
 - ▶ Full EE6 Profile support
 - JMS, JAX-RS, JAX-WS, ...

Related Talks



- Geronimo Track (later today):
 - ▶ Apache Geronimo and OSGi Enterprise Specification
 - ▶ Scala for Efficient Java EE Entities
- Enterprise Track (Friday):
 - ▶ Getting Started with JCDI
 - ▶ Apache OpenEJB in Depth
 - ▶ Enterprise OSGi Applications with Apache Aries